

Strand	Site	Description	Grade Focus
Lego Robotics for Education and Competition	CSI	This strand will present two competitions that Idaho students frequently participate in. The Idaho TECH Challenge (Mars Rover) competition, run by the Idaho Space Grant, for students in 4th-6th grades and the FIRST Lego League (FLL) that has taken the Magic Valley by storm. Students from 4th-8th grade may participate. There will also be a demonstration of the high school level robotics programs. There will be personalized instruction for the programming parts.	4-6, 6-8
STEM in your Back Yard	CSI	What could be more fun than using recess to teach STEM subjects? This strand will help educators learn how to integrate playgrounds and school yards into the teaching of science, technology, engineering, math, and art. The strand will provide lots of C and I (creativity and imagination) utilizing playgrounds, school yards and local parks. The strand will teach participants how to use playgrounds for year-round instruction, instruction that incorporates a wide variety of hands-on projects. We will be going on a number of mini field trips around the area to demonstrate how any school yard or neighborhood can be used for outdoor education.	3-6
Going Green with Inquiry and STEM	CSI	Discover the environment by creating one and exploring within. Participants in this strand will engineer an ecosystem with simple materials and use it as a basis for learning environmental science and integrating STEM across grade levels, subject areas, and new standards (Idaho Core and NGSS). A series of hands-on inquiry activities and field trips will support the learning. Participants will receive a kit of materials that can be used in multiple ways in varying classroom settings.	4-6, 6-8, 9-12
The Math, Ecology, and Economics of Placer Mining	CSI	Participants in The Math, Ecology, and Economics of Placer Mining will participate in a variety of hands on lessons with gold mining as the central theme. We will learn how to locate a mining claim, use a Global Positioning System, build gold mining equipment, read topographic maps, evaluate the economic value of a mine, and determine the significant ecological impacts of placer mining. All the activities are designed to be implemented in the classroom with minimal addition preparation.	4-6, 6-8, 9-12
Celebrating STEM Education and Literature	CSI	Kindergarten through third grade educators: Please join Miss Rumphius, Henry & Mudge, Jack & Annie, Fluffy, Mercy Watson, and many more of our students' literary-friends on a journey of discovery, practice, and celebration of the foundational concepts of STEM education. Educators will leave this strand with a superfluity of ideas, resources, and research supporting the integration of STEM and children's literature in their k-3 classroom.	K-3
Forensics with TI-Nspire Technology	CSI	The language of mathematics comes alive when used to solve criminal cases. With the usage of the TI-Nspire and Vernier probes, participants will discover how mathematical concepts are used to determine relationships. Once these relationships have been determined, participants will be able to make probable conjectures as to who or how a crime was committed. Participants will also deal with the spread of viruses and Newton's Law of Universal Gravitation.	6-8, 9-12

Strand	Site	Description	Grade Focus
Don't forget the "T" in STEM - There's Arduino for that!	CSI	Remote sensing, data visualization, and modeling are common practices for enhancing our understanding of complex systems. Climate offers a rich topic for exploration of chemistry, physics, maths, and biology. Opensource electronics and an understanding of microprocessors, along with engineering and science practice, makes data acquisition and analysis a discovery tool for your classroom. This strand will provide you with specific technology and its understanding that will provide a platform for all your students to engage in science, maths and engineering explorations across the curriculum.	6-8, 9-12
CSI Administrative Strand: "Building Administrators Capacity to Support STEM Education"	CSI	Join us as we focus on building administrators understanding of what an integrated STEM program looks like. We will investigate tools to help you support your teachers in the implementation of the Common Core and Next Generation Standards. Participants will observe and evaluate learning activities using a STEM focus rubric. Sessions will also include an introduction to documenting your building progress with a "Window Surface RT Tablet" and various tools including movie maker software, Common Core applications, and use of Microsoft windows suite software. There is a \$120.00 fee required. Benefit: Take home a Windows Surface RT Tablet, multiple integrated STEM activities, and resources to help support you as the building instructional leader	Administrators & Counselors

Strand	Site	Description	Grade Focus
Ignite Students' Interest in STEM Careers and STEM!	CWI	The purpose of this strand is to help educators raise students' interest in STEM and STEM Careers by showing them how to introduce young students to: a. The wide variety of science careers available, b. The many paths to becoming a scientist, c. The vibrant women and men working in STEM today. This will fuel their interest in STEM and make the study of science, technology, engineering and math more meaningful to them.	4-6
Science and Our Food Supply	CWI	Food borne illness is a preventable health problem. Each year, millions of illnesses in the United States can be attributed to contaminated foods. Science and our Food Safety is a challenging, inquiry based program that provides practical skills for handling and storing food. This strand will provide teacher participants with hands-on microbiology lab experiences to teach food safety. Field trips to sites where food safety is essential are scheduled.	6-8, 9-12
Robotics Reaching CCSS and NGSS 1st - 5th Grades	CWI	Participants use LEGO WeDo robotics to meet CCSS and NGSS while motivating and engaging students. WeDo allows elementary students to explore programming and engineer working models. WeDo Robotics has cross-curricular activities designed for the elementary learner. Participants receive a WeDo kit, software and curriculum set. The LEGO curriculum provides complete lesson plans for science, math, literacy, and social studies making it easy to get started writing stories, solving problems, and creating innovative projects.	K-3, 4-6
Let's Get Physical: Science and the Common Core	CWI	Teachers will gain a deeper understanding of physical science content through hands on experiences and demonstrations. Inquiry based lessons will incorporate 3 themes for physical science including states of matter, properties of matter, and physical and chemical changes of matter. Mathematical content from the common core will be integrated throughout the lessons. Pedagogical focus will incorporate recommended practices of both the common core and the Next Generation Science Standards.	4-6
Planes Trains and Automobiles	CWI	The Planes, Trains and Automobiles strand will focus on learning science by using technology, engineering and mathematics. It will integrate scientific reading and writing and use materials to satisfy math and literacy common core standards. Teachers will learn how to guide their students through the "story" of energy and transportation: basics of energy and motion, history of transportation, gears, friction, incline, types of transportation, fuels and efficiencies and careers. The strand will combine lecture and hands-on, inquiry based activities. The main activity for the strand is a transportation design challenge, in which teachers will build a small, remote-powered vehicle to perform a variety of tasks. Teachers will use a scientific notebook to organize and document the engineering design process.	4-6, 6-8
Computer Science Principles using AppInventor and Processing	CWI	Learn how to teach <i>computer science principles</i> using mobile and visual apps. Participants will be instructed on how to develop mobile apps using AppInventor and visual apps using Processing. Unifying computer science principles will be revealed via the hands-on activities. Special emphasis will be given on how to teach the material to their students. Gain an appreciation for how and why computer science is revolutionizing all aspects of human endeavors.	11-12

Strand	Site	Description	Grade Focus
STEM HP – Engineering for Sustainability	CWI	Our world's resources are limited, requiring us to rethink how we make, use and dispose of products. In this 2014 strand, students will learn about the “product lifecycle” and its phases – design, materials, manufacturing, distribution, use and recycling – from the perspectives of both consumer and producer. Developing STEM skills and critical thinking, students will explore how factors and choices across the phases impact each other and complete a design challenge.	4-8
Sparkling a Passion for STEM - Integrating Inquiry & Engineering into hands-on STEM activities	CWI	This strand will include instruction in inquiry learning through hands-on activities to help teachers get students engaged in the classroom. Teachers will learn the hows and whys of facilitating grade-level appropriate, standards-aligned science and engineering activities in the physical sciences, including connections to project-based and cross-curricular lessons. The sessions will be facilitated by the Micron Foundation K-12 staff, content experts from Micron and a Master Teacher.	5-9
Healthy Water Healthy People	CWI	Teachers will research, investigate, experience, and discuss how essential an abundant and high quality water supply is to their lives. They will learn about personal health needs relating to hydration, and world water issues. This course will feature classroom ready interdisciplinary activities, guest speakers and locally relevant field trips featuring water access and delivery. This course is designed for 5 <sup>th</sup> – 8 <sup>th</sup> grade teachers who want to learn more about integration of water science into their curriculum.	5-8
We NEED Energy	CWI	We NEED Energy! will jump right in with hands on experiments related to the Science of Energy. Through discovery and discussion, you'll learn about generation sources with emphasis on Solar, Wind, Nuclear, Energy Efficiency and Natural Gas. In the Global Trading Game, you'll experience an integrated, multidisciplinary lesson firsthand. If you're an intermediate or secondary level teacher, you'll leave with the background knowledge necessary to get your students excited and engaged in energy discussions. And you'll take home a robust classroom kit containing all the materials needed to stage effective hands-on activities for immediate use in your classroom. The curriculum used is from the NEED (National Energy Education Development) Project.	6-8, 9-12
CWI Admin Strand - STEM Integration through the Administrative Lens	CWI	Collaboration on STEM integration in your schools along with Idaho Core Standards implementation will be a focus of the administrative strand. Share what that looks like in your building and learn new ideas from your peers. Physics and technology connected to your golf swing will be another part of your learning experience for the week. First time golfers to low handicap players will benefit from this experience of integrating STEM. Golf course field trips and time in teacher strands will be included. Participants are expected to bring a laptop, iPad, tablet or smartphone and are encouraged to bring golf clubs. All strand attendees will receive a Swingbyte 2.	Administrators & Counselors

Strand	Site	Description	Grade Focus
It's Elementary (Math) Watson	EITC	Bridging your curriculum to the Idaho Core	K-3
STEM on the Playground	EITC	What could be more fun than using recess to teach STEM subjects? This strand will help educators learn how to integrate playgrounds and school yards into the teaching of science, technology, engineering, math, and art. The strand will provide lots of C and I (creativity and imagination) utilizing playgrounds, school yards and local parks. The strand will teach participants how to use playgrounds for year-round instruction, instruction that incorporates a wide variety of hands-on projects. We will be going on a number of mini field trips around the area to demonstrate how any school yard can be used for outdoor education	3-6
Elementary PBL STEM	EITC	Biology and physics come together to shed light on science we experience every day. By taking a closer look at some basic concepts we will see potential for meaningful learning in the world around us. Sure, there will be hands on activities you can take back to the classroom. BUT THAT'S NOT ALL! As an added bonus we will look at technologies that almost beg for the use of skills beyond STEM. History or even (wait for it) <u>language arts</u> can be integrated in a well designed STEM project. That's the promise of Project Based Learning.	K-6
Innovative Concepts & Tools to Teach Nuclear Science, Energy, Safety, & Engineering	EITC	Explore innovative concepts and tools to teach nuclear science, energy, safety, and engineering principles. Get new ideas to help students understand radiation and the physics of energy from the nucleus of atoms. Preview The Harnessed Atom, a 10-lesson kit that engages students with hands-on experiments, interactive learning, and career opportunities. This workshop introduces The Harnessed Atom, a new energy and nuclear science STEM curriculum extension for middle school teachers and students from the U.S. Department of Energy. The teacher's kit includes a Teacher's Guide, Student Readers, pretest and post-test evaluation metrics, experiments and class activities, lecture presentations, a poster, video and historic film, interactive computer educational games, and evaluations for both teacher and students. The DOE Office of Nuclear Energy collaborated with hundreds of classroom teachers, our national laboratories, leading universities, leading state and national teacher associations, and innovative technology firms in the private sector to support science, technology, engineering, and math (STEM) education. The purpose of this teacher kit is to help students understand the energy technologies and options that play an increasingly crucial role in their lives and in our world. The careers emphasis in the curriculum encourages the technical skills required to maintain our national energy infrastructure. An important goal is to raise awareness for students interested in sciences and engineering, including nuclear engineering, and to help prepare them to make informed choices about possible majors and careers.	6-8

Strand	Site	Description	Grade Focus
Exploring the Greater Yellowstone Ecosystem	EITC	Exploring the Greater Yellowstone Ecosystem engages the learner in the complexity of an ecosystem that has undergone change over time. This strand will focus on ecosystem concepts, wildlife issues (such as the reintroduction of the gray wolf to the park), consequences to stakeholders, cultural connections, and the evidence of climate change in the largest national park in the lower 48 states. STEM methodologies and strategies will be demonstrated throughout the strand. Activities will be demonstrated that can be used in the classroom. <b><i>The strand will also offer an extended 4 day field experience with the Yellowstone National Park for an additional charge.</i></b> Field experience will include observations and studies of wildlife in the northern range of the park, discussions with researchers, tour of the Yellowstone archives, searching for evidence of climate change, and hiking to observe the many wonders of the park. Ample time will be available for filming and picture taking throughout the fieldtrip which can be used in the classroom.	4-12
It's Elementary (Math) Watson	EITC	Teachers will have a better understanding of what each of the eight math practice standards entails. They will participate in engaging activities that practice these standards. They will learn to narrow and deepen the scope, time and energy spent in teaching these concepts.	K-3

Strand	Site	Description	Grade Focus
Nourishing the Planet in the 21st Century	ISU	The basics of life are food, water, and shelter. Feeding the world in the next 50 years will take a lot of workers and new technologies. Hands on materials (labs) and procedures that can be adapted to any classroom and any age will be provided. Modern technology will be used to create the 21st century classroom learning environments where careers and the high tech world of Agriculture can be explored.	3-12
Getting to the Heart of STEM: Integrating STEM Concepts and the Human Body	ISU	The human body is an ideal theme for exploring a wide range of STEM topics. The biology, chemistry, physics, variations in sizes and shapes, tools used for measurement all flow together to provide a rich context for teaching STEM concepts. Further, situating STEM learning activities within the framework of the human body with a focus on the heart provides a familiar and interesting context that increases the concept relevancy for learners. Capitalizing on the expectation that young learners can eagerly and readily relate to STEM lessons presented in the human body context, we have developed a series of hands-on inquiry based lessons to teach a wide range of concepts. The strand will focus on education of the 4th through 7th grade student, but can easily be adapted to younger or older ages.	4-6, 6-8
Unidentified Flying Objects	ISU	Extreme Aeronautics - It is amazing what will fly. Hands on, take it home activities and easy to understand concepts surrounding flight and take off. All with the design question in mind "Can you make it better?" Join us in some physics "phun".	7-12
Out of the Rock: Your Mineral Resources	ISU	Human ingenuity and our bountiful Earth have made mineral resources the foundation of modern civilization. This Strand is based on the popular <i>Out of the Rock</i> workshops and STEM is at its heart. Explore the process of mining. Experience science, technology and engineering at work throughout an active mine. Make the rock cycle and Earth's inner structure come alive. Create your own rock and mineral kit. See how to use <i>Out of the Rock</i> (OOTR) engaging materials and resources to help implement the Idaho Core Standards and 21 <sup>st</sup> Century/Next Generation Science Standards practices in a STEM context in your 4 <sup>th</sup> – 6 <sup>th</sup> grade classroom.	4-6
Learning Ecology through Problem-Based Environmental Education	ISU	Problem-based learning (PBL) is an exciting way to learn ecology. PBL engages students in solving authentic ecological case problems, stimulating discussion among students and reinforcing learning. PLB can play a role in enhancing and instructing STEM subjects. This strand will teach participants innovative ways to infuse STEM into PBL environmental education as we learn from local scientists about our native habitats, and threats to those habitats including invasive species, water pollution and drought, and decreases in biodiversity.	6-8
You Can't Beat the System	ISU	The purpose of this strand is to engage teachers in the process of designing and building operating systems that can be used to develop crosscutting concept lesson plans to meet the <i>Next Generation Science Standards</i> (NGSS). This strand address the challenges of teaching scientific topics while keeping those topics relevant to students. It uses operating systems to develop student critical thinking and understanding rather than relying upon rote memory to master complex scientific concepts.	8-12



Strand	Site	Description	Grade Focus
Math, Mining, and More	LCSC	This strand will explore all aspects of placer mining in Idaho. Students will be involved in integrating components of Science, Technology, Engineering, and Math as we discover, learn and get real hands-on experience with mining and the different aspect of enjoying one of Idaho's fastest growing hobbies!	4-6, 6-8
ForesTree	LCSC	Wood you believe? Investigate Idaho's trees, forests and forest products in a STEM context. Do hands-on inquiry activities from Project Learning Tree and other programs, indoors and out. (Strand is for both new and experienced PLT teachers.) Identify and measure trees. Explore a forest. Make paper and test paper qualities. Go behind the scenes where wood and paper products are made. You'll leave eager to explore these topics and activities with your 4th-6th grade students.	4-6
Teaching Science by Design	LCSC	Quality science instruction is critical to today's students. Participants in this strand will explore the foundational steps of how to engage students in science lessons, how to collect and analyze data, and finally how to guide students to internalize what they have learned. By using a sequential template, teachers will learn an organizational format that can be applied to most science units as they develop units of instruction. With creative application of this instructional format, teachers will stimulate students' learning of science, enhance student skills in reading and writing aligned with science, and support applied math within a real world context.	4-6, 6-8
Enhancing Literacy with primary Sources	LCSC	Integrating Common Core Standards with Library of Congress primary source materials, this workshop will incorporate Web 2.0 tools and Barbara Stripling's inquiry process. Participants will examine literacy applications within a theme of Innovation and Invention using Reading like a Historian materials for sourcing, close reading, contextualization, and corroboration. Come prepared for hands-on activities and opportunities for personal reflection and leave with lessons ready for classroom implementation.	4-6, 6-8,9-12
IDAHO Energy Project	LCSC	The Idaho National Laboratory (INL) in partnership with (NEED) will provide teachers across the state of Idaho a unique opportunity to learn information and hands-on activities to teach students about energy related topics; Science and Sources of Energy, Solar, Wind, Nuclear, Hydro, Geothermal, Fossil Fuels, and Energy Consumption and Conservation. NEED is the nation's leading provider of energy education programs and materials to schools. Each participant receives instructional materials, on line support, and <b>an appropriate level NEED hands-on science kit</b> for their classroom.	3-8



Strand	Site	Description	Grade Focus
NASA- "Space Debris!" - Designing Problem-based Learning/ Solving Real-World Challenges	NIC	The NASA strand focuses on the critical, real-world issue of "Space Debris". (Think movie "Gravity"?) It is a genuine cross-curriculum project as are most NASA topics. Our goal for the weeklong strand will be to create components of a unit using the problem-based learning model to address this issue. We will learn, to practice and implement the engineering design process to work toward solutions. The course will cover topics in Earth science, space science, mathematics, GPS and engineering.	6-8
Raspberry Pi Computing	NIC	Raspberry Pi has been used as an educational tool for music, mathematics, and geography, among other subjects. It is a pocket-size mini-computer. You can use it to surf the internet, send an email or write a letter using a word processor. Raspberry Pi is the perfect tool for aspiring students who want to learn more about computers, because no matter what you do in life, computers are bound to be part of it.	6-8, 9-12
Watching Math Come Alive Using Science and Technology	NIC	Students separate math and science into two very different subjects, frequently math is "hard" and science is "fun." In this strand, we will use science and technology to find the fun in math while learning how to teach abstract concepts that students struggle with, such as slope/rate of change, wavelength/frequency/amplitude, and data interpretation. We will use the CCSS and NGSS demonstrating how both sets of standards can be integrated into your classroom using technology.	6-8
Newton's Laws of Motion in Elementary School? You Bet!	NIC	Next Generation Science Standards include PHYSICAL SCIENCE in our elementary schools; forces, motion, and their interactions. In this strand you learn why all movement is caused by force, and how to demonstrate this to your students while building and/or playing with toys and rockets. In addition we'll use music and video clips to reinforce learning. If you like to learn by having fun (and like to teach this way), join me! NOTE: This strand is best for elementary classroom teachers.	3-5
Under Construction - Numeracy, Geometry, and Bridges	NIC	This strand is geared toward K-3 teachers with the Common Core Math Standards in numeracy and geometry driving the content. Participants will explore the four key ideas in numeracy as well as geometrical concepts in both plane and solid figures, developing appropriate vocabulary as they manipulate and explore various shapes. They will explore the use of literature in the development of concepts as well. After their initial work in these areas they will engage in activities that include: exploring bridges, holding the load and building bridges using the K'Nex Bridge system. They will integrate math, science, and technology as if they were the students in their own classrooms'.	K-3
A Walk in the Watershed	NIC	Teachers will be immersed in the experience of an inquiry based, hands-on learning environment working with an integrated curriculum that ties together the Next Gen Science Standards, and the new Core Standards for Math and Language for 3rd-6th grade. Content will flow through Earth and Life Science, touching upon key concepts in Physical Science, using Watersheds as the overarching theme. Mapping, microscopes, minerals, and making discoveries about the water in your backyard!	4-6

Strand	Site	Description	Grade Focus
i-Can Do It: iPads in Education	NIC	Spend a week exploring your very own iPad and its use in education. Throughout the conference, you will learn to master the iPad, discover and evaluate iPad Apps applicable to your classroom setting, and create lessons incorporating iPads and apps for education. Special focus will be on science and math applications and peripherals. Note: There is an additional fee for this strand and no additional "Kit" materials. The iPad you select will be discounted \$250, so the extra fee will be \$225+ depending on the iPad you select. More information will be sent after applications are accepted.	3-12
NIC Administrative Strand	NIC	The Administrative challenge of each stakeholder or leader is to support our teachers in their ability to effectively integrate STEM and the practices of <u>Idaho Core Standards</u> and <u>Next Generation Science Standards</u> to assure our students are prepared for the workplace of today and tomorrow. Administrators will define key vocabulary and set up action plans for implementing "Inquiry Teaching", and bolstering the STEM process in their schools. Participants will be taught as well as discover how they are going to present these ideas and requirements to their students and staff. Participants will use a Windows Surface RT Tablet to build movie videos to be shown at staff meetings and board meetings to promote these important implementation steps. Time will be spent learning how to use technology to improve the learning process as well as time on observing and documenting teachers as they learn these same important pieces of information. Cost: Each participant will be asked to pay an addition \$120.00 to get their Windows Surface RT Tablet (64 GB) and a gift card for buying apps and accessories.	Administrators & Counselors